

**WHAT IS CLAIMED IS:**

- 1        1. A method of purifying used oil comprising the steps of:  
2              placing used oil into a continuous flow apparatus;  
3              contacting the used oil with a base introduced at such a rate as to maintain  
4              the base at about 1 weight % to about 10 weight % of the oil composition;  
5              contacting the used oil with a phase transfer catalyst introduced at such a  
6              rate as to maintain the phase transfer catalyst at about 2. weight % to about 10  
7              weight % of the oil composition;  
8              heating the composition to a temperature between about 200<sup>0</sup>C and about  
9              275<sup>0</sup>C;  
10             mixing the composition;  
11             separating the resultant mixture using a first distillation at a temperature of  
12             from about 200<sup>0</sup>C to about 275<sup>0</sup>C and a pressure of from about 100 torr to about  
13             200 torr; and  
14             purifying the used oil using a second distillation at a temperature of from  
15             about 275<sup>0</sup>C to about 300<sup>0</sup>C and a pressure of from about 0.05 torr to about 0.20  
16             torr.
- 1        2. The method as recited in Claim 1 additionally comprising the step of:  
2              heating the oil composition obtained from the first distillation to a  
3              temperature between about 200<sup>0</sup>C and about 300<sup>0</sup>C; and  
4              mixing the composition after the first distillation but before the second  
5              distillation.
- 1        3. A method of purifying used oil comprising the steps of:  
2              placing used oil into a continuous flow apparatus;

3                   contacting the used oil with a base selected from the group including  
4                   sodium hydroxide and potassium hydroxide introduced at such a rate as to  
5                   maintain the base at about 1 weight % to about 10 weight % of the oil  
6                   composition;

7                   contacting the used oil with ethylene glycol introduced at such a rate as to  
8                   maintain the phase transfer catalyst at about 1 weight % to about 10 weight % of  
9                   the oil composition;

10                  heating the composition to a temperature between about 200<sup>0</sup>C and about  
11                  275<sup>0</sup>C;

12                  mixing the composition;

13                  separating the resultant mixture using a first distillation at a temperature of  
14                  from about 200<sup>0</sup>C to about 275<sup>0</sup>C and a pressure of from about 100 torr to about  
15                  200 torr; and

16                  purifying the used oil using a second distillation at a temperature of from about  
17                  275<sup>0</sup>C to about 350<sup>0</sup>C and a pressure of from about 0.05 torr to about 0.20 torr.